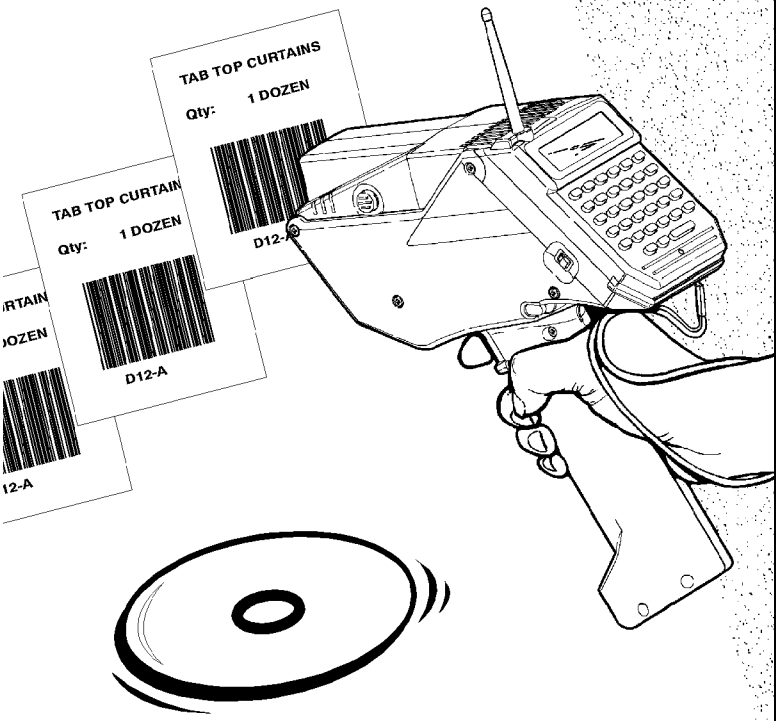
Application Notes

MONARCH® DOS-based PATHFINDER® Ultra® System



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INTRODUCTION 1

The MONARCH® DOS-based PATHFINDER® Ultra® printer is very versatile. In addition to running applications that you write with Microsoft® C/C++ 1.52 (described in the *Programmer's Manual*), it can

- communicate with a host via a serial communications port.
- use international configurations for its keypad and display.

The printer has one un-buffered PC-card slot. With it, the printer can

- use extra memory.
- communicate over a wireless network.

About this Manual

Technical personnel that set up application systems for the printer should read this manual after they read the *Programmer's Manual*. It is a companion to the *Programmer's Manual*.

The following table describes the conventions used in this manual.

Convention	Description
[ ]	Brackets indicate optional items.
...	Ellipses indicate that the preceding item is repeated one or more times.
Italics	An item appearing in italics is a variable, a function parameter, or a variable's value.
Bold	An item appearing in bold is being emphasized.

Related Documentation

The following table describes other manuals for the printer.

Manual	Description
ROM-DOS™ User Manual	Describes the Datalight® ROM-DOS operating system that runs on the printer.
Equipment Manual	Describes how to operate the printer. For example, it covers topics such as loading supplies, using the scanner, etc.
Programmer's Manual	Describes how to create applications with the C/C++ language libraries supplied with the software development kit (SDK).
MPCLII *Packet Reference Manual*	Describes the MPCLII printer language.
MONARCH® quick-set software Label Designer Online Help	Describes how to use the Label Designer. Use this utility to create the design for the labels the application prints.
MONARCH quick-set software Font Utility Online Help	Describes how to use the Font Utility. Use this utility to convert TrueType and HP fonts into MPCLII font packets.

USING MEMORY CARDS 2

You can use an AT-Attachment (ATA) memory card with the appropriate device drivers to add memory to the printer. The card goes in the printer's PC-card slot. The application treats the memory card as another disk drive.

Memory cards are flash-based. They have a built-in processor to track bad locations and maximize flash life (ensuring no location is overused).

Available memory cards come in 4, 8, 20, and 40 MB sizes.

Configuring Memory Cards

The following procedure describes how to configure memory cards. Refer to the *Programmer's Manual* for more information.

1. Place the following files (located in the SDK's DOS sub-directory) in the application disk image's root directory:

Name	Description
ATAINIT.EXE	Memory card partition utility.
GENATA.CLB	Generic configuration library for the memory card.
CSALLOC.INI	Initialization file for CSALLOC.EXE.
CARDID.INI	Initialization file for CARDID.EXE. This file contains references to configuration libraries (.CLB files) for the memory card. At a minimum, this file must refer to GENATA.CLB.
SSELAN.EXE	SystemSoft Socket Services.
CS.EXE	SystemSoft Card Services.
CSALLOC.EXE	SystemSoft Card Allocation Module.
ATADRV.EXE	Memory card driver.
CARDID.EXE	Memory card ID driver.

2. Enter the following lines in the application's CONFIG.SYS file:
   DEVICE=SSELAN.EXE
   DEVICE=CS.EXE
   DEVICE=CSALLOC.EXE
   DEVICE=ATADRV.EXE
   DEVICE=CARDID.EXE

3. Create the disk image and load it into the printer.

4. Reboot the printer.

USING RADIO CARDS 3

You can use a radio card with the appropriate device drivers to enable a printer to run radio-frequency (RF) communications, which allow the printers to use wireless radio networks. The card goes in the printer's PC-card slot.

Following are the available radio cards:

- Aironet 3000 (U.S./Canada)
- Aironet 3500 (U.S./Canada)
- Aironet 2.4 (U.K., France, Germany, and Australia)
- Symbol 2.4 100mW and 500mW (U.S./Canada)
- Symbol 2.4 (U.K., France, and Germany)
- Symbol 902 Mhz (U.S.)
- Proxim 2.4 (U.S./Canada, U.K., France, and Germany)

Configuring Radio Cards

The following procedure describes how to configure radio cards. Refer to the *Programmer's Manual* for more information.

1. From the diskette that came with the SDK, gather the files for your radio card.

2. Place the radio card files and the following files in the application disk image's root directory:

Name	Description
SSELAN.EXE	SystemSoft Socket Services.
CS.EXE	SystemSoft Card Services.
CSALLOC.INI	Initialization file for CSALLOC.EXE.
CSALLOC.EXE	SystemSoft Card Allocation Module.

You can find the files in the table in the SDK's DOS sub-directory.

2. Add the lines from the radio drivers' sample CONFIG.SYS and AUTOEXEC.BAT files to the application's versions of those files.

3. Enter the following lines in the application's CONFIG.SYS file:
```
DEVICE=SSELAN.EXE
DEVICE=CS.EXE
DEVICE=CSALLOC.EXE
```

4. Create the application's disk image and load it into the printer.

5. Reboot the printer.

For updated radio card files, contact the radio vendor (Proxim, Symbol, or Aironet).

SERIAL COMMUNICATIONS 4

The printer has one RS-232 serial communications port located on the printer's side. The port is 16450 UART-compatible and supports up to 115k baud.

Connector Pinouts

The external connection to the port is an 8-pin mini-DIN receptacle. The connector pin outs are:

Pin	Signal	Direction
1	RTS (Request to Send)	Out
2	CTS (Clear to Send)	In
3	RXD (Received Data)	In
4	GND (Ground)	
5	TXD (Transmitted Data)	Out
6	DSR (Data Set Ready)	In
7	DTR (Data Terminal Ready)	Out
8	DCD (Data Carrier Detect)	Out
	(optional +5 volts)	

Using I/O Routines

The SDK does not provide routines for reading and writing to the serial port. Application developers can

- write their own routines. These routines must use interrupt 14hex.
- use third-party products such as Greenleaf CommLib™. This product is a software development kit consisting of libraries with serial port input/output calls on a variety of ports in a variety of environments. Monarch does not recommend any particular third-party product.

INTERNATIONAL CONFIGURATIONS

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To configure the printer for international use, you must configure the keypad and display.

Configuring the Display

To configure the display for international use, put a reference to the DISPLAY.SYS driver in CONFIG.SYS, specifying the appropriate code page.

Refer to the *ROM-DOS 6.22 User Manual* to learn how to use DISPLAY.SYS and see a list of code pages.

For the *fontfilespec* parameter of DISPLAY.SYS, specify ULTRA.CPI. Include both ULTRA.CPI and DISPLAY.SYS in the application's disk image. Both files are located in the SDK's DOS sub-directory.

Configuring the Keypad

To configure the keypad for international use, you implement a international keypad map. The default keypad map is for the United States. See “International Keypad Maps” for more information about these maps.

To implement an international keypad map:

1. Enter the following line in the application’s AUTOEXEC.BAT file:

   KEYB *country*

   where *country* is the code for the map to use (see “International Keypad Maps”).

2. Create a disk image for the application. Include KEYBOARD.SYS, AUTOEXEC.BAT, and KEYB.COM in it.

3. Load the disk image into the printer.

4. Reboot the printer.

To switch temporarily from an international map to the default map, press Alt and Fct at the same time, then 1. To switch back, press Alt and Fct at the same time, then 2.

Generating International Characters

Tell your application’s end users to use the following procedures (as applicable) to generate international characters.

1. Refer to “International Keypad Maps” for the map diagram to use.

2. Press Alt and the key in the map at the same time in Upper-case Alpha mode. This action generates the upper-right character in the square for the key (see the keypad maps, below). Or, press Alt and the key in the map at the same time in Lower-case Alpha mode. This action generates the lower-right character.

International Keypad Maps

Below are diagrams showing the characters for the international keypad maps. Each square in the diagram represents a key. The lower-left character in the square is from the default map.

Universal Pathfinder Map (Country Code UP)

	A	À à	B	È è	C	Ì ì	D	Ò ò	E	Ù ù
	F	Á á	G	É é	H	Í í	I	Ó ó	J	Ú ú
Del	K	Â â	L	Ê ê	M	Î î	N	Ô ô	O	Û û
	P	Ä ä	Q	Ë ë	R	Ï ï	S	Ö ö	T	Ü ü
	U	Ã ã	V	Ñ ñ	W	ß ß	X	Õ õ	Y	Ý ý
	Z	Å å	Space		Enter					

Alt +W in Shifted and Unshifted mode both generate the beta (ß) character.

Turkish Map (Country Code TR)

	A	B	C Ç ç	D	E
	F	G Ğ ğ	H	I İ ı	J
Del	K	L	M	N	O Ö ö
Alt	P	Q	R	S Ş ş	T
Shift	U Ü ü	V	W	X	Y
	Z	Space	Enter		

GLOSSARY

Following is a list of terms you must be familiar with to use the information in this manual.

Term	Definition
Application	A program written in Microsoft C/C++ 1.52 that runs on the printer.
Disk Image	A file containing the application and related files put in the printer's flash memory.
Flash Memory	A type of memory written to (or over) in large units.
Memory Card	A type of PC card that provides extra memory for the printer.
Radio Card	A type of PC card that enables the printer to communicate with an access point via a radio.